Utilizing Cow Dung Ash and Volcanic Ash To Manufacture Eco-Friendly Building Materials To Solve Environmental Pollution and Provide Accessibility to Cheap Housing

Starepravo, Danylo (School: New Mexico Military Institute)
Rosser, William (School: New Mexico Military Institute)
Pham, Ngoc (School: New Mexico Military Institute)

The excessive production of cow manure in New Mexico is an environmental concern. Simultaneously, cement, the main ingredient in concrete, leads the world as one of the biggest producers of CO2, which contributes copiously to pollution across the globe. Upon becoming aware of this data, the team attempted to solve the problem and investigate how society can use cow manure, volcanic ash, and other wastes to produce analogs close to the parameters of commercial materials. After further research, our team found a formula used by the Romans, including sand and calcium hydroxide. From this formula, the team developed a modified formula using the materials on hand to achieve the consistency they needed to produce a building material. After creating the samples, the team experimented with several ways of curing it in shape, like forced drying, natural drying, and the use of a water bath. After curing, the group performed several tests to gather data on the material's durability and insolubility. The tests used are tensile strength, compression test, and thermal resistance (R-value). All of the data gathered thus far have demonstrated that our building material is robust, insoluble, and durable. Overall, the samples have satisfied the teams' goal of reducing CO2 emissions and making the manufacturing process simple and worldwide available.

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